

APPLICANT(S): BARTLETT, Philip Nigel et al.
SERIAL NO.: 10/538,769
FILED: June 10, 2005
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REMARKS

The present response is intended to be fully responsive to all points of objection and/or rejection raised by the Examiner and is believed to place the application in condition for allowance. Applicants assert that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

Status of Claims

Claims 1-22 are pending in this application and have been rejected. Claims 1 and 11 have also been objected to.

Claim Objections

In the Office Action, the Examiner objected to claims 1 and 11 because of alleged informalities (the cross sectional area has been expressed in meters, instead of in its corresponding units of area, e.g., m^2).

Claims 1 and 11 refer to "uniformly sized pores with a cross-section in the order of 10^{-9} to 10^{-8} m", and the Examiner has assumed that the stated pore dimensions refer to cross-sectional area and that these dimensions should have been m^2 . Applicants respectfully assert that the Examiner's assumption is not correct, since the application as filed (at page 4, line 23) states that pore size means "pore diameter". As such, the Examiner should consider this limitation of Claims 1 and 11 as "m" as written, and not " m^2 " as stated in the Office Action. Accordingly, Applicants have not amended any claims and request withdrawal of the objection.

CLAIM REJECTIONS

35 U.S.C. § 103 Rejections

In the Office Action, the Examiner rejected claims 1-22 under 35 U.S.C. § 103(a), as being unpatentable over Bartlett (PCT Patent Application Publication No. 99/00536) in view of Attard et al. (U.S. Patent No. 6,203,925). Applicants respectfully traverse this rejection.

Bartlett et al. discloses a method of preparing a porous film comprises electrodepositing material from a mixture onto a substrate, the mixture comprising: a source of

metal, inorganic oxide, non-oxide semiconductor/conductor or organic polymer; a solvent such as water; and a structure-directing agent such as octaethylene glycol monododecyl ether to form an homogenous lyotropic liquid crystalline phase in the mixture. Electrodepositing the film from a lyotropic liquid phase in this manner provides a porous film having a substantially regular structure and substantially uniform pore size.

Bartlett et al. discloses that electrodes having a porous structure have a high surface area over which interaction and/or redox processes can occur (see, Bartlett et al., at page 1, lines 15-16), and mentions a wide range of possible applications in very general terms (see, Bartlett et al., at paragraph bridging pages 1-2 and paragraph bridging pages 15-16). However, Bartlett et al. does not mention power density or energy density.

Attard teaches a method of preparing a porous metal comprises reducing a mixture comprising a source of metal; a solvent such as water; and a structure-directing agent such as octaethylene glycol monododecyl ether to form a liquid crystalline phase in the mixture. The reduction of the mixture having a liquid crystalline phase, for example using zinc metal as reducing agent, provides a porous film having a substantially regular structure and substantially uniform pore size.

The present invention is concerned with meeting the very special requirements of portable electronic devices. As set out in the description, such devices require both high power density and high energy density (see application as filed, page 1, last paragraph).

It was unexpectedly found by the present inventors that an electrode of the type disclosed in Bartlett et al., when used as the positive electrode in an electrochemical cell, unexpectedly provides the high power density and high energy density that is required by a portable electronic device. Nothing in the disclosure of Bartlett et al. would lead the skilled person to believe that this combination of properties could be achieved by the present invention. Similarly, Attard does not solve the deficiencies of Bartlett et al.

The combination of Bartlett et al. and Attard do not render obvious independent claim 1, which recites "A portable electronic device comprising an electrochemical cell, said cell comprising a positive electrode, a negative electrode and an electrolyte, wherein said positive electrode comprises a mesoporous structure having a periodic arrangement of substantially uniformly sized pores with a cross-section in the order of 10^{-9} to 10^{-8} m."

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Claims 2-22 are dependent upon independent claim 1 and therefore include all the limitations thereof. The combination of Bartlett et al. and Attard, which does not render obvious independent claim 1, also does not render dependent claim 2-22 obvious.

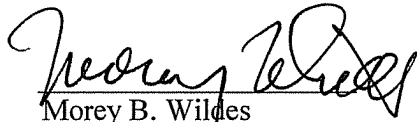
Conclusion

In view of the foregoing amendments and remarks, Applicants assert that the pending claims are allowable. Their favorable reconsideration and allowance is respectfully requested.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Please charge any fees associated with this paper to deposit account No. 50-3355.

Respectfully submitted,



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